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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,461	07/07/2003	Zhixin Li	ferus0603	7582

23580 7590 09/02/2005
MESMER & DELEAULT, PLLC
41 BROOK STREET
MANCHESTER, NH 03104

EXAMINER

PICKARD, ALISON K

ART UNIT	PAPER NUMBER
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3673

DATE MAILED: 09/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/614,461

Applicant(s)

LI, ZHIXIN

Examiner

Alison K. Pickard

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15 is/are allowed.
- 6) ☒ Claim(s) 1-14 and 16-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-14 and 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent 62-278377 (JP '377).

JP '377 discloses an assembly and method of making a multistage magnetic fluid seal comprising a shaft 11 having plural trapezoidal ridges 1a, a permanent magnet 13, and first and second 12 pole pieces each having plural trapezoidal-shaped ridges (adjacent 2a) along an inner diameter. The ridges of the pole pieces are spatially opposed to the ridges of the shaft to form a close, non-contacting relationship. The relationship defines a radial gap that receives ferro-fluid to form plural stages. Each ridge has a top plateau that diverges to an annular region at an angle between 0 to 180 degrees.

Allowable Subject Matter

3. Claim 15 is allowed.
4. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record taken as a whole does not show nor suggest the combination of limitations required by the claims. JP '377 fails to show that the flat top portion of the ridges (on both the shaft and pole piece) faces the radial gap that defines the stage. Rather, JP '377 shows the stage and radial gap formed between top and side portions of the ridges. In other words, JP '377 does

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not show that the ridges on the shaft and pole piece are aligned so that the radial gap/stage is defined between the aligned top flat/plateau portions of the ridges. And, there does not appear to be any motivation absent applicant's own disclosure to modify the prior art in the manner required by the claims.

Response to Arguments

5. Applicant's arguments and the Declaration of Dr. Zhixin Li filed 6-24-05 have been fully considered but they are not persuasive.

The rejection of Black in view of EP '656 has been withdrawn for reasons other than the arguments presented by Applicant and in the Declaration, for at least the product claims. Upon further consideration, the examiner determined that the combination of Black in view of EP '656 would not create the invention as claimed because EP '656 does not appear to teach a square ridge as an art equivalent with a trapezoidal ridge (compare Figs. 7 and 8 of EP '656). Figure 8 appears to show that the entire inner surface of the pole piece would be modified, not just the little ridge such as that shown in Figure 7. Thus, it doesn't appear that the combination/modification would result in the plurality of trapezoidal ridges required by the claims.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alison K. Pickard whose telephone number is 571-272-7062.

The examiner can normally be reached on M-F (10-7:30), with alternate Friday's off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather Shackelford can be reached on 571-272-7049. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Alison K. Pickard
Primary Examiner
Art Unit 3673

AP